

NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

SHALLOW WATER MANAGEMENT FOR WILDLIFE

(acre)

CODE 646

DEFINITION

Managing shallow water on agricultural lands and moist soil areas for wildlife habitat.

PURPOSE

- To provide open water areas on agricultural fields and moist soil areas to facilitate waterfowl resting and feeding.
- To provide habitat for reptiles and amphibians and other aquatic species which serve as important prey species for waterfowl, raptors, herons, and other wildlife.
- To provide shallow water habitat for wetland mammals.
- To provide winter cover for open land wildlife.

CONDITIONS WHERE PRACTICE APPLIES

On agricultural and moist soil areas, on both hydric and non-hydric soils, where water can be impounded or regulated by diking, ditching, excavating, or flooding for the purpose of wildlife habitat management.

This practice can be used to facilitate the conservation of declining wetland dependent and threatened and endangered species.

This practice applies where the intended purpose is to create and/or manage shallow water for the above purposes. This practice does not apply if the intended purpose is to rehabilitate a degraded wetland where the

soils, hydrology, vegetative community, and biological habitat are to be returned to presettlement conditions. For this purpose use the Wetland Restoration (657) standard. Shallow Water Management for Wildlife practice does not apply where the intended purpose is to rehabilitate a degraded wetland where specific functions and/or values are enhanced beyond presettlement conditions. For this purpose use the Wetland Enhancement (659) standard. Shallow Water Management for Wildlife practice does not apply where the intended purpose is to create a wetland on a site which historically was not a wetland or on a site which was formerly a wetland but will be replaced with a wetland type not naturally occurring on the site. For this purpose use the Wetland Creation (658) standard

CRITERIA

General Criteria Applicable To All Purposes Above.

- Soils should have moderately slow permeability (less than 0.6 inches per hour) or season high water table, to inhibit subsurface drainage and allow for maintenance of proper water levels.
- Shallow water impoundments require an adequate water supply for reflooding the impoundment during periods of planned inundation. An adequate method for dewatering the impoundment is required during planned drawdowns.
- Water levels should be able to be maintained between 1 to 18 inches in depth over the majority of the area

during periods of planned inundation.

- Landowner shall obtain all local, state, and federal permits necessary.
- Water control structures and drainage modifications shall comply with all local, state, and federal regulations (e.g. state drainage law).
- If pumping, water withdraw rights must be acquired.
- The Standards and Specifications for : Wetland Restoration (657), Dike (356), Pumping Plant for Water Control (533), and Structure for Water Control (587) will be used as appropriate. Refer to the Engineering Field Handbook for additional design information. Existing drainage systems will be utilized, removed, or modified as needed to achieve the intended purpose.
- Existing wetlands will be preserved and protected from being manipulated or used in a manner which would reduce the functions (type or capacity) the wetlands are providing.
- Water control structures shall be designed on an individual job basis, or applicable NRCS standard drawings shall be adapted, to meet site conditions and functional requirements. They shall be part of an approved overall engineering plan for the site. Care must be used to insure that the area's visual resources are not damaged.
- On structure sites, if soil and climatic conditions permit, a protective cover of vegetation shall be established on all disturbed earth surfaces. If soil or climatic conditions preclude the use of vegetation and protection is needed, nonvegetative means, such as mulches or gravel, may be used. In some places, temporary vegetation may be used until permanent vegetation can be established. Seedbed preparation, weeding, fertilizing, and mulching shall comply with the instructions in technical guides.

CONSIDERATIONS

For optimum site conditions and management considerations for shallow water impoundments see Table 1.

Consider existing drainage facilities (subsurface tile, ditches, culverts, etc.) and the need for their modification.

To insure that foods are available to dabbling ducks impoundments should be designed to be gradually flooded, inundating new areas of food plants in 4 to 10 inches of water as the unit fills. For shorebirds, mudflats should be exposed and provide areas with 1 to 4 inches of water during shorebird migration periods.

Consider the effects of the timing of the flooding and drawdown, as well as the type of drawdown, on target plant species and plant species composition (moist soil areas).

Consider the target plant species flooding tolerances and the composition of seed in the soil at the site (moist soil areas).

Nearly level sites will allow larger units while keeping the water depths within the optimum range (requiring fewer dikes). Sites with steeper grades will be more expensive to construct than flatter grades because more dikes will be required to maintain the desired water depths.

Consider effects on wetlands or wildlife habitats that would be associated with the practice.

Consider the need for buffer practices beneficial to wildlife around the perimeter of the site. Plan practices such as Filter Strip (393) to limit sedimentation from entering or leaving the management unit, and/or Field Border (386) and/or Conservation Cover (327) to create a vegetative buffer between the management unit and adjacent land uses. This buffer should be at least one rod wide (16.5 feet), or wider, depending on its purpose.

Consider the effects of residual herbicides (moist soil areas).

Consider effects on movement of dissolved substances to groundwater and to downstream surface waters.

Consider effects on downstream flows that would affect other water uses or users.

Consider the amount and type of human disturbances in the area and their possible impact on wildlife. Limit disturbances during periods when waterbirds are present and plan screened buffer zones to separate disturbances from the site.

Consider the use of upstream impoundments as a source of water when additional water is needed.

PLANS AND SPECIFICATIONS

Plans and specifications for this practice shall be prepared for each site. Plans and specifications shall be recorded using approved specification sheets, job sheets, technical notes, narrative documentation in the conservation plan, or other acceptable documentation.

The planner is encouraged to work closely with the NRCS Biologist, IDNR Biologist, or other wetland specialist in developing site specific plans and specifications.

Plans and specifications for installing structures for water control shall be in keeping with this standard and shall prescribe the requirements for applying the practice to achieve its intended purpose. The plan shall specify the location, grades, dimensions, materials, hydraulic and structural requirements for the individual structure, and the timing or sequence of installation activities. Provisions must be made for necessary maintenance.

OPERATION AND MAINTENANCE

The purpose of operation and maintenance is to insure that the practice functions as intended over time.

A plan for the operation, maintenance, and management of the shallow water or moist soil area shall be developed and recorded using approved job sheets, technical notes,

or other forms of acceptable documentation. The plan shall include monitoring and management of the overall site, as well as structural and vegetative measures.

Actions will be carried out to ensure the practice functions as intended throughout its expected life. These actions include normal repetitive activities in the application and use of the practice (operation) such as water level manipulation, moist soil management, planting waterfowl food crops, managing crop residue, prescribed fire, and disking. Repair and upkeep of the practice (maintenance) shall be carried out as needed, such as repair or replacement of vegetative or structural components.

Biological control of undesirable plant species and pests (e.g., using predator or parasitic species) shall be implemented where available and feasible.

Any use of fertilizers, mechanical treatments, prescribed burning, and pesticides and other chemicals shall not compromise the intended purpose of the shallow water or moist soil area.

Promptly remove and dispose of dead waterbirds or fish to control the spread of avian botulism and other wildlife diseases.

REFERENCES

- Admiraal, A.N., M.J. Morris, T.C. Brooks, J.W. Olson, and M.V. Miller. 1997. *Illinois wetland restoration and creation guide*. Illinois Natural History Survey Special Publication 19. 188pp.
- Eldridge, Jan. 1990. *Management of Habitat for Breeding and Migrating Shorebirds in the Midwest, 13.2.14 Fish and Wildlife Leaflet 13, Waterfowl Management Handbook*. U.S. Fish and Wildlife Service. Washington D.C. 6 pp
- Fredrickson, Leigh H. 1991. *Strategies for Water Level Manipulations in Moist-soil Systems, 13.4.6 Fish and Wildlife Leaflet 13, Waterfowl Management Handbook*. U.S. Fish and Wildlife Service. Washington D.C. 8 pp

Fredrickson, Leigh H. and Frederic A. Reid. 1988. *Waterfowl Use of Wetland Complexes*, 13.2.1 *Fish and Wildlife Leaflet 13, Waterfowl Management Handbook*. U.S. Fish and Wildlife Service. Washington D.C. 6 pp

Kelley, J.R. Jr., M.K. Laubhan, F.A. Reid, J.S. Wortham, and L.H. Fredrickson. 1990. *Options for Water-level Control in Developed Wetlands*, 13.4.8 *Fish and Wildlife Leaflet 13, Waterfowl Management Handbook*. U.S. Fish and Wildlife Service. Washington D.C. 8 pp

Korschgen, C.E. and R.B. Dahlgren. 1992. *Human disturbances of waterfowl: causes, effects, and management*, 13.2.15 *Fish and Wildlife Leaflet 13, Waterfowl Management Handbook*. U.S. Fish and Wildlife Service. Washington D.C. 8 pp.

Lock, Louis N. and Milton Friend. 1989. *Avian Botulism: Geographic Expansion of a Historic Disease*, 13.2.4 *Fish and Wildlife Leaflet 13, Waterfowl Management Handbook*. U.S. Fish and Wildlife Service. Washington D.C. 6 pp.

Ringelman, James K. 1990. *Managing Agricultural Foods for Waterfowl*, 13.4.3

Fish and Wildlife Leaflet 13, Waterfowl Management Handbook. U.S. Fish and Wildlife Service. Washington D.C. 4 pp.

USDA Natural Resources Conservation Service. 1992. *Engineering Field Handbook, Chapter 13, Wetland Restoration, Enhancement, or Creation*. Washington D.C. 74 pp.

USDA Natural Resources Conservation Service. 1975. *Engineering Field Handbook, Chapter 6, Structures*. Washington D.C. 91 pp. Illinois supplements 1985. USDA/NRCS Champaign, IL. 45 pp.

USDA Natural Resources Conservation Service. 1999. *Illinois Shallow Water Management for Wildlife Job Sheet (646)*. Champaign, IL. 4 pp.

Internet Sites

Fish and Wildlife Leaflet 13, Waterfowl Management Handbook. U.S. Fish and Wildlife Service.

www.mesc.usgs.gov/wmh/Default.htm

Illinois Department of Natural Resources - Flora - Fauna

http://dnr.state.il.us/ill_flora_fauna/florfauna.htm

Table 1. Important considerations in evaluating wetland management potential.

Factors	Optimum Condition
Water supply	<ul style="list-style-type: none"> • Independent supply into each unit. • Water supply enters at highest elevation.
Water discharge	<ul style="list-style-type: none"> • Independent discharge from each unit • Discharge at lowest elevation for complete drainage. • Floor of control structure set at correct elevation for complete drainage
Water control	<ul style="list-style-type: none"> • Stoplog structure allowing 2-inch changes in water levels. • Adequate spillway capacity to handle storm events • Water control structure capable of draining at least 1 inch per day from the unit.
Optimum unit size	<ul style="list-style-type: none"> • 5 to 100 acres
Optimum number of units	<ul style="list-style-type: none"> • At least 5 within a 10-mile radius of units

ADAPTED FROM: FREDRICKSON, 1991. *FISH AND WILDLIFE LEAFLET* 13.4.6. • 1991